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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/623,910	07/18/2003	Shau-Lin Shue	TS99-132CC	5353
7590	12/22/2003		EXAMINER	
George O. Saile 28 Davis Avenue Poughkeepsie, NY 12603			HO, TU TU V	
			ART UNIT	PAPER NUMBER
			2818	

DATE MAILED: 12/22/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/623,910	SHUE ET AL.	
	Examiner	Art Unit	
	Tu-Tu Ho	2818	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 2 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 July 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 14-25 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) _____ is/are rejected.
- 7) ☒ Claim(s) 1 and 14-25 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>031022</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

This application is in condition for allowance except for the following formal matters:

1. **Claims:** This application is in condition for allowance except for the presence of claim 1. In the Transmittal of New Application Paper dated 21 July 2003, Applicant canceled claims 2-13. However, after reviewing all papers, the examiner believe that Applicant had wanted to cancel claims 1-13 (in the Transmittal of New Application Paper, Page 1, "CANCEL IN THIS APPLICATION ORIGINAL CLAIMS 2-13 of the prior application before calculating the filing fee. (At least one original independent claim must be retained for filing purposes.)", i.e., Applicant wrote down 2-13 only because the phrase "At least one original independent claim must be retained for filing purposes" in the form; and in the Remarks Paper, under *In the Claims* section, "New claims are submitted with this Continuation. These claims describe a Dual Damascene structure and a Single Damascene structure that are the results of the claimed methods of the parent application."

Furthermore, claim 1 would be subject to a clear Double Patenting Rejection of the claims of the copending application.

2. **Priority:** If applicant desires priority under 35 U.S.C. 120 based upon a previously filed copending application, specific reference to the earlier filed application must be made in the instant application. This should appear as the first sentence of the specification following the title, preferably as a separate paragraph. The status of nonprovisional parent application(s) (whether patented or abandoned) should also be included. If a parent application has become a patent, the expression "now Patent No. _____" should follow the filing date of the parent application. If a parent application has become abandoned, the expression "now abandoned" should follow the filing date of the parent application.

In the instant case, add “, now Patent No. 6,610,592”.

Allowable Subject Matter

3. The following is a statement of reasons for the indication of allowable subject matter:
The prior art of record fails to teach or render obvious a Damascene wiring structure, integrating low-K dielectrics, for use in semiconductor fabrication, comprising all exclusive limitations as recited in claims 14 and 20, comprising a homogeneous low-k dielectric layer over a semiconductor structure having conductive regions and insulating regions, a matrix of structural elements embedded within the dielectric layer and containing thermally conductive material, and a plurality of via plugs in the dielectric layer, characterized in that the dielectric layer is homogeneous with a dielectric constant of less than 3.2, the structural elements are in contact with the insulating regions, and the via plugs are in contact with the conductive regions.

Specifically, the prior art of record, U.S. Patent 6,495,917 to Ellis-Monaghan et al. discloses in Figures 24 and 25 a wiring structure with structural elements 250 (supporting pillars) and via plugs 254 over the structural elements 250, and U.S. Patent 6,573,538 to Motsiff et al. discloses in Figures 4-7 a wiring structure with structural elements 69 (thermally conductive dummy vias) connected to a thermally conductive guard ring.

As allowable subject matter has been indicated, applicant's reply must either comply with all formal requirements or specifically traverse each requirement not complied with. See 37 CFR 1.111(b) and MPEP § 707.07(a).

Conclusion

4. Prosecution on the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

A shortened statutory period for reply to this action is set to expire **TWO MONTHS** from the mailing date of this letter.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tu-Tu Ho whose telephone number is (703) 305-0086, **and after January 8, 2004 will be 571-272-1778**. The examiner can normally be reached on 6:30 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, DAVID NELMS can be reached on (703) 308-4910, and after January 8, 2004 will be 571-272-1787. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9306 for regular communications and (703) 872-9306 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1782.



Tu-Tu Ho
December 13, 2003



David Nelms
Supervisory Patent Examiner
Technology Center 2800